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Peter's Trypanophobia and Hemophobia

Dr. Mona Ghazi Sayegh
School of Education
Lebanese International University (LIU)
Nabatieh - Lebanon
Lebanese Order of Psychologists (LOPSY)
https://orcid.org/0000-0001-7996-7262

Abstract:- Peter presented to the clinic with dreadful fear of needles: Trypanophobia and overwhelming fear of blood: Hemophobia. His case complicated his need for medication and interfered with his school performance. History of anxiety disorders made him vulnerable to this condition, and his overprotective mother perpetuated his fear unintentionally. He was successfully treated with cognitive behavioral therapy CBT.

Keywords:- *Trypanophobia; Hemophobia; Overprotective; Cognitive Behavioral Therapy, SCARED.*

I. INTRODUCTION

A. Theoretical Framework

The term "phobia" refers to an overwhelming or illogical dread of something or a situation. It is classified into two types: social phobias and specific phobias (Petersen et al. 2023). A significant dread or worry about a particular thing or circumstance is what defines a specific phobia, which usually appears before the age of 10 (APA, 2022, pp. 226 - 227).

The excessive, intense fear of needles and needle-based medical treatments is known as trypanophobia (Cleveland Clinic, 2022). It is mainly caused by classical conditioning (Jenkins, 2014). It manifests as excessive perspiration, elevated blood pressure, trembling, weakened muscles, palpitations, dry mouth, nausea, lightheadedness, asphyxia, sleeplessness, compulsive thinking, and a need to flee (Ivanova & Hristova, 2021). It leads people to avoid vaccinations and other medical treatments (Bourne et al., 2022).

Fear of blood, or hemophobia, on the other hand, is fear of blood, injuries, and injections (Petersen, et al. 2023). Risk factors may be temperamental, behavioural, genetic, physiological, traumatic, and parental (being overprotective) (APA, 2022, pp. 228-229). Hemophobia has a distinct physiological reaction pattern that involves an increase in blood pressure and pulse rate, followed by a sharp decline that causes the brain's oxygen supply to plummet, causing fainting (Petersen et al., 2023).

Specific phobias can be treated using various modalities including imaginary, in vivo exposure, virtual reality exposure, and cognitive therapy (Petersen et al., 2023; Singh and Singh, 2023). Relaxation methods like deep breathing, autogenic training, visualizing, muscular relaxation, and distraction are all efficient. In addition, Helfer skin tapping technique, cryotherapy - the cold method, The Z-track approach - pulling the skin laterally away from the injection site work well with fear of needles (Ivanova & Hristova, 2021).

B. Biographical Data

Peter is a 10-year-old school boy who has an older sister. He lives with his parents who are overprotective and anxious. They brought him to therapy because of his intense and crippling fear of needles and blood.

C. Presenting problems

Peter has been suffering from excessive fear of needles and blood for years. His situation is now deteriorating, and he is avoiding all medical and blood-related issues. He admits his fear is irrational; however, it is debilitating his physical and academic life. Nothing has been mentioned about how his fear is affecting his social life.

Peter is clearly suffering from two specific types of phobia: distinctive fear of needles and blood-related situations; his case meets the full criteria described in DSM-5 – TR since his case is persistent and has extended for several years, causing him clinical distress and bodily symptoms (rapid heartbeat, profuse sweating, trembling, vomiting), which may be triggered even by mentioning the word needle. Similarly, any blood-related scenario causes him to feel dizzy and lightheaded, and occasionally, fainting. As a result, he has been avoiding every situation exhibiting the phobic stimuli. His uncontrollable fear and anxiety started impairing his school performance, mainly in biology as it is related to the circulatory system.

In brief, Peter's first diagnosis is trypanophobia, which is fear of needles and of needle-related situations (Cleveland Clinic, 2022). In addition, Peter is also diagnosed with hemophobia, which is fear of blood and blood related situations (Petersen, et al. 2023).

Peter's family has a history of anxiety disorders, including health anxiety; his mother displays catastrophic thinking over her children's health; his parents are overprotective and do not expose him to situations that may trigger his fear. This avoidance is maintaining his fear. The critical incident that intensified Peter's fear of needles was a painful needle experience, and that related to his fear of blood

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was witnessing his sister going through a medical procedure involving blood test, during which he felt helpless.

II. CASE FORMULATION

A. Vulnerability factors

The biopsychosocial factors contributing to Peter's case are: *Biological Factors:* His parents have a history of anxiety disorders, which make him biologically predisposed to anxiety related disorders.

- *Psychological Factors:*

His parents are overprotective, thus, involving him in a vicious circle of avoidance, thus exacerbating and maintaining his fear and avoidance.

- *Social Factors*:

Nothing has been mentioned about social factors as to whether Peter has been bullied or whether his case is limiting his social relations with peers or whether he witnessed a case related to his fears in his environment.

B. Underlying Beliefs and Assumptions

Peter believes that needles are dreadfully painful, and that something terrible will happen if he comes into contact with them. He believes that his fear is irrational; yet, his fear is intense. In addition, he is convinced that seeing blood will lead him to pass out or become seriously ill.

Indeed, Peter's underlying beliefs and cognitive distortions have been acquired from his mother's catastrophic thinking mindset. She constantly fabricates the worst-case scenario of everything, which pushes her to overprotective, and thus instilling in her son's mindset that this is the most appropriate thinking style and behavior. In this way, Peter has developed the catastrophic thinking style.

Peter's core beliefs and rules of living can be easily inferred. Peter has the core beliefs that "I am vulnerable". It can be also inferred from Peter's avoidance of all the phobic stimuli and triggers that his first rules of living are: "I should avoid needles and any medical procedure involving them or else something terrible will happen to me", and "I should avoid any blood-related situation or medical procedure or else I will get seriously sick and may even die".

C. Precipitating factors

Peter's parents have a family history of anxiety disorders, especially health anxiety. This is a kind of predisposition to the development of anxiety-related disorders. In addition, his mother, in particular, worries about getting sick. Her behavior and mentality act as a live model to be imitated by Peter. Worse, she displays catastrophic thinking in regards to her children's health, which Peter translates as I am in constant danger and I am doomed. So, the mother's modeling of cognitive distortions formulates Peter's cognitive distortions and mindset.

Additionally, Peter's parents show overprotective behaviours, such as avoiding any situations that might trigger Peter's phobias. This is how Peter learns that situations involving doctors, hospitals, syringes, vaccination, medical procedures and tests are all dangerous and should be avoided to stay safe; otherwise, he will be seriously ill and even die. Even mentioning these words or concepts, as in biology classes, makes him anxious. So, Peter's parents who are constantly keeping him away from situations related to his fears contribute to the maintenance of his trypanophobia and hemophobia, and thus perpetuating them.

Moreover, Peter misinterprets the physiological responses that he is experiencing in the presence of needles: rapid heartbeat, profuse sweating, trembling, and vomiting as a proof that something terrible will happen in the presence of needles. Similarly, Peter's dizziness, lightheadedness, and occasional fainting in response to blood-related stimuli send him a message that his fears are real, and he may eventually die in such situations.

In brief, Peter's mother's cognitive distortions, the overprotective parental style that puts him in a vicious cycle of avoidance, and Peter's bodily sensations are precipitating Peter's Phobias.

D. Critical Incidents

- *Critical Incident Related to Peter's Fear of Needle-Related Situations: Trypanophobia*

It has been previously mentioned that Peter's fear of needles has intensified after a painful needle experience.

- *Critical Incident Related to Peter's Fear of Blood-Related Situations: Hemophobia*

Peter's fear of blood-related situations has intensified after he witnessed his older sister undergoing a medical procedure involving blood test, and that he felt helpless during that experience.

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E. Maintaining Factors

➢ *Maintaining the Cycle of Fear of Needles (Fig. 1)*

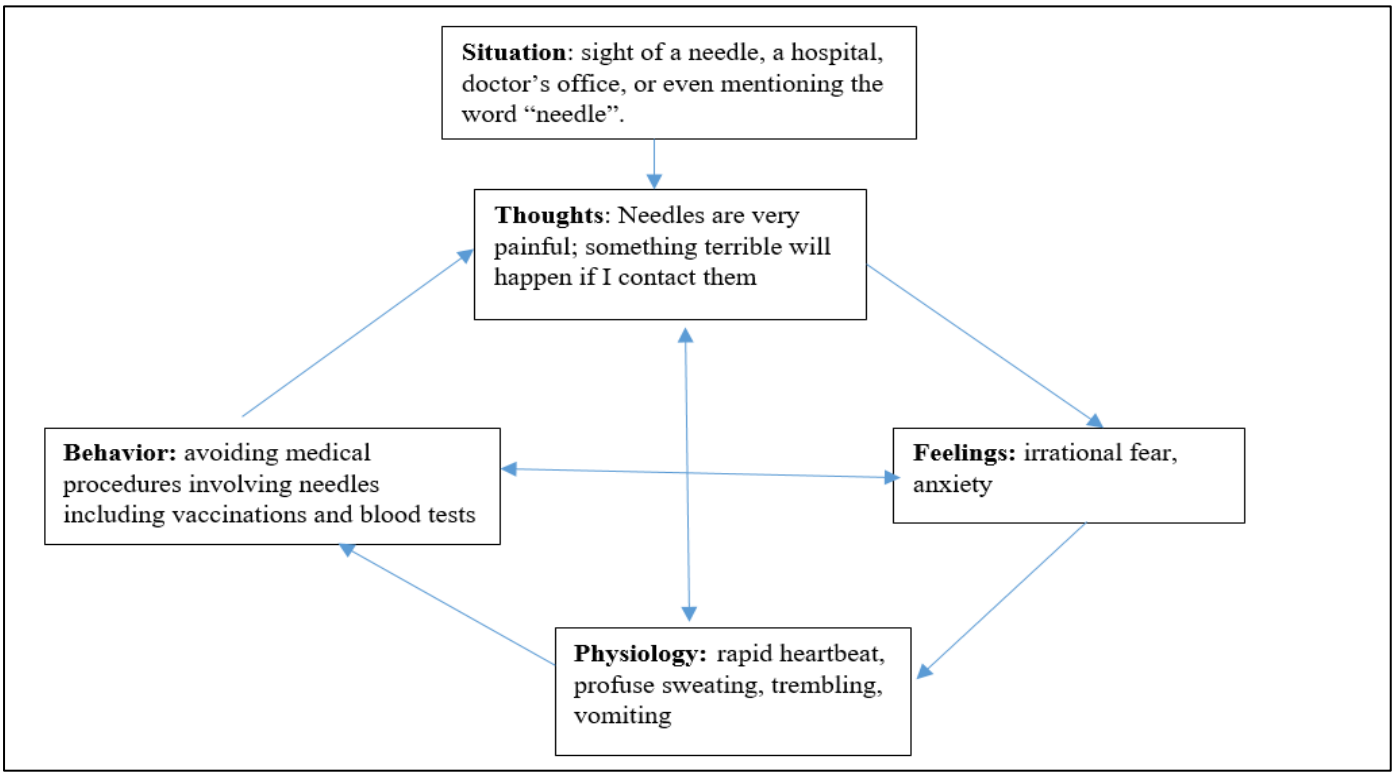

Fig 1 Cycle of Fear of Needles

➢ *Maintaining the Cycle of Fear of Hemophobia (Fig.2)*

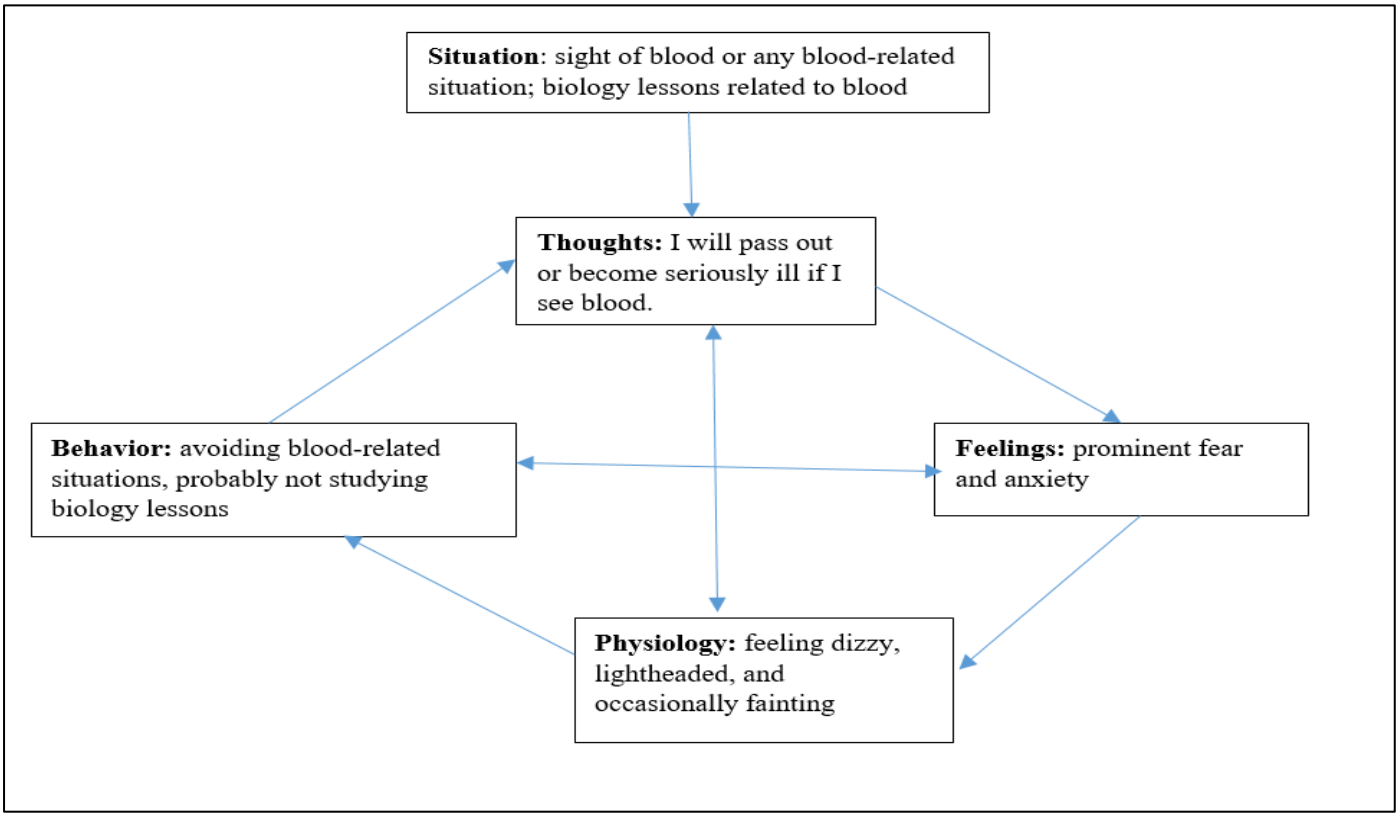

Fig 2 Cycle of Fear of Blood

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- *Past Experiences and Early Life Events*

The overprotective parenting style constitutes a kind of ongoing cognitive vulnerability factor that maintained and reinforced Peter's fears and avoidance.

III. COURSE OF TREATMENT

In general, treating phobia may need 4 to 8 sessions. However, the vulnerability factors in this case may hinder the progress of treatment. Treatment plans are tentative and contingent on both parental cooperation and commitment as well as the presence or absence of therapy interfering behaviors.

- *First session: Assessment with Peter's parents alone*

After welcoming the parents and listening to their input about Peter, a structured interview was done to gather extensive background information using an assessment sheet to uncover Peter's developmental and medical history as well as his feelings, thoughts, and behaviors, especially attention seeking behaviors. Questions were raised about the family's medical and health problems since it was important to know how frequently syringes, needles, blood tests and other medical procedures Peter was exposed to. The mystery of his fear from doctors and all medical procedures had to be uncovered so that treatment could be tailored properly.

In addition, in this session questions about Peter's coping mechanisms as well as his family's were raised since there is a family history of anxiety disorders, health anxiety in specific. Questions about the overprotective parenting style and the related behaviors that may reinforce Peter's fear as well as the family dynamics were clarified. Academic performance and social relations were traced to identify bullying, isolation or unusual incidents.

Though symptoms of phobia and anxiety are clear, SCARED (parent's version) was administered to screen for different symptoms of anxiety-related disorders and to set the baseline of treatment.

- *Sessions 2: Assessment with Peter*

Assessment with Peter alone followed using the direct method depending due to his mental and psychological readiness. First, I worked on making Peter feel at ease. It was a structured interview in which I derived the necessary information from Peter that lead me to know the triggers of fear and the related modifiers, his bodily symptoms, feelings, behaviors and thoughts to know how to address his cognitive distortions later. I also administered SCARED (the child version) to set a baseline for therapy.

- *Session 3: Case Formulation, Psycho-education, and Goal Setting with parents***.**

I explained the case formulation (Fig. 3) to the parents and told them about SACRED score and explained it to them and that we would apply it again later to compare scores and trace progress. Then I psycho-educated the parents about CBT essentials, and explained Peter's physiological symptoms in the light of the fight, flight, freeze response. I also explained the diagnosis: hemophobia and trypanophobia to parents, and how they were related. Then I clarified how the overprotective parenting style is dysfunctional since it acted as a cognitive vulnerability model maintaining and reinforcing Peter's fears, and how important it was to replace some overprotective parental behaviors with other ones to support therapy; otherwise, they would act as therapy interfering behaviors endangering the continuity of therapy. Similarly, I explained how Mom's catastrophic thinking about children's health is delivering a message to Peter that thinking of the worst-case scenario in every situation is something normal. In addition, I psycho-educated them about how cognitive behavioral therapy works as well as how the relationship between thoughts, emotions and behaviors are maintaining the cycles in Peter's case, and the need to perform repetitive behavioral experiments and assignments, and that there may be slips, setbacks, and lapses during therapy. I also informed them of the golden rules of therapy: parents should be very cooperative for the therapy to work; therapy is not magic; parents' goals may be different from therapist's goals; and therapy –interfering behaviors signal the end of therapy.

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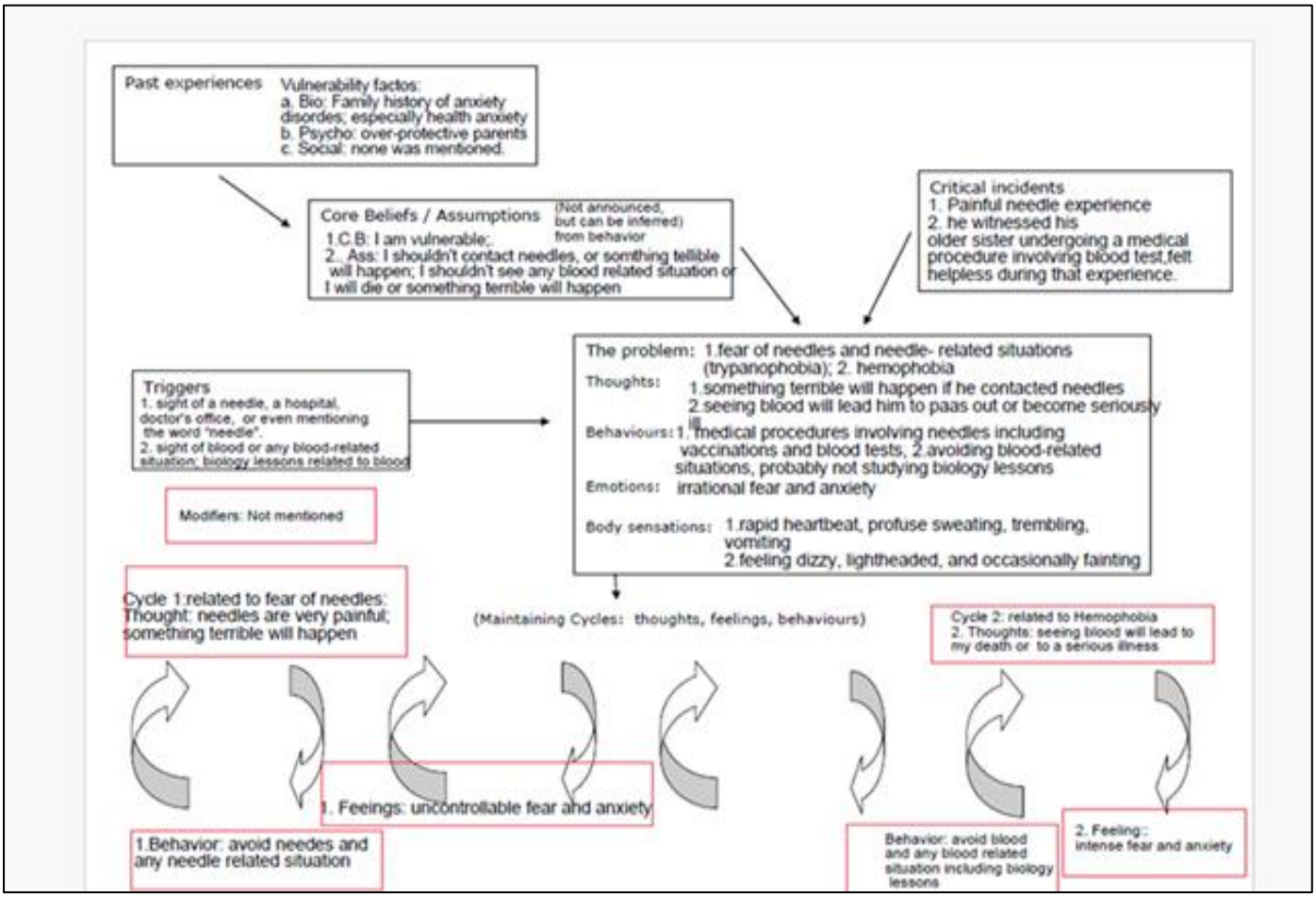

Fig 3 Peter's Case Formulation

Finally, I asked the parents about their expected goals and changed them into S.M.A.R.T goals. These goals were adjusted to meet the therapy needs and hot spots accordingly. Based on this, therapy addressed the following S.M.A.R.T goals:

- Peter will not react with fear at mentioning the word needles or seeing blood or any related situation to both triggers.
- Peter will be able to take his medication that requires needles and syringes calmly.
- Peter will be able to see blood and hear about it without fainting or feeling dizzy.
- Peter will be able to visit the doctor's clinic and hospital to get his blood tested or to be vaccinated without being anxious.
- Peter will be able to study biology lessons related to the circulatory system and look at the related illustrations without signs of panic and fear.

➢ *Session 4: Case Formulation, Psycho-education, and Goal Setting with Peter*

First, I explained the case formulation to Peter in simple terms and told him about his SACRED score and what it meant. I then normalized his feelings of worry and anxiety and explained their role in making us safe. I used a lot of examples, drawings and analogies to simplify the ideas such as the analogy of running away from a bear to save our lives, and as when we feel worried about a test, which makes us prepare for it. I introduced that there is a difference between real threat and perceived threat, and how our brains deal with them in the same way.

Then, I psycho-educated him about the concept of the fight, flight, freeze automatic response to feelings of fear using simple language and a lot of visual aids and drawings. I explained how the brain reacts to such sense of threat and maximizes the survival rate by sending a lot of messages to the body organs to face threat, and that was responsible for the bodily sensations that peter felt, such as rapid heartbeat, sweating, trembling. All these were attempts to face danger to maximize survival rates. I also explained why vomiting took place in some cases and that it was due to shutting the digestive system down, and why fainting upon seeing blood took place due to the low blood pressure.

Another key point that was clarified was the difference between real threat and perceived threat. This psycho-education was extremely important for Peter because understanding the fight, flight, freeze response to perceived threat was the stepping stone of his therapy. I made sure that he understood that his bodily symptoms are automatic responses because his brain was dealing with needles and blood as real danger because he was telling his brain that he was in danger and that his brain was automatically responding to his message.

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Then, I asked Peter about his goals in therapy, and what he likes to start with and wrote them in the form of S.M.A.R.T goals.

Finally, I asked Peter to draw two illustrations of the brain's role in the fight, flight, freeze response similar to what we did in the session to make sure he understood everything.

➢ *Sessions Five to Seven*

These sessions were dedicated to the correction of cognitive distortions through different techniques: challenging thoughts, evidence for/evidence against, negative glasses and popcorn analogies, surveys, likelihood ratio and inverted pyramid, exposure, and behavioral experiments, distraction and deep breathing.

At the beginning of each session, I would check the assignment and reward Peter's understanding. Then, to challenge his cognitive distortion about needles, I would ask him whether he thinks all people believe that needles are dreadfully painful, and if they believed something terrible would happen if they came into contact with them. To test this idea, I suggested that a survey be done. I helped him set the questions of the survey (Table 1).

Table 1 Questions of the Surveys

Survey 1

1. Do you think that needles are dreadfully painful?
2. Do you think something terrible will happen if you come into contact with needles?
3. Have you ever been injected with a needle and you felt pain was deadly?
4. Have you ever been injected with a needle and something terrible happened to you?

Survey 2:

1. Do you think that seeing blood leads to death?
2. Have you ever saw blood and something terrible happened to you?
3. Have you ever heard of someone who died because he saw blood?
4. Have you ever heard of someone who got terribly sick because he saw blood?
5. How many of them got terribly sick?

In the following session, survey results were analyzed, which refuted his belief and normalized the use of needles in life since they may only cause very limited and controlled pain.

Another test to challenge his thought is testing the likelihood that something terrible would happen using the inverted pyramid (Fig. 4). This technique is used to reduce the likelihood of the thought that needles and blood are harmful and deadly. The point is to see that the thought of danger is overestimated, and the coping style is underestimated.

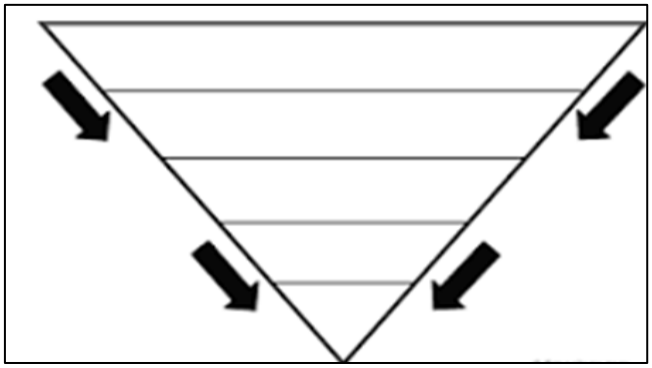

Fig 4 Illustration of the Inverted Pyramid Technique

➢ *Examples of the Questions used in this Technique are:*

- How many people do you know are exposed to needles every day? (a big number)
- How many out of them really die of pain? (none)
- How many of them get terribly sick? (none)

To challenge Peter's other thought about blood, ask similar questions related to blood and use the technique 'challenging thoughts' as illustrated in the challenging thought table. (Table 2).

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Table 2 Outline of Challenging Thoughts

Day & Time	Thoughts	Supporting Evidence	Challenging Evidence	Balanced Thoughts

Then I explained that Peter's fears are perceived simply because the survey results proved this. I use the analogies of the popcorn and negative glasses that lead to these negative automatic thoughts. I reminded him of the related reactions explained in the fight, flight, freeze response.

Then, behavioral experiments were used to challenge these cognitive distortions. Logically speaking, since Peter had to take regular medications using syringes and needles, then Peter's first goal was to get rid of his fear of needles. Consequently, I told Peter that we were going to design behavioral experiments that help him overcome his fear of needles.

Thus, I asked Peter to rate his fear of needles from the lowest (1) to the highest (10). Modifiers are used in my examples here: mentioning the word 'needle', the size of the needle, the place where it is injected, and whether it is intravenous or intramuscular, etc. I built this hierarchy of fear and helped Peter design a series of behavioral experiments, one at a time, to challenge his thought that "needles are excruciatingly painful and contacting them will cause something terrible to happen". I made sure that these experiments are feasible and possible to happen (Table 3).

The order of such experiments was expected to come after the following exposures: visualizing a needle, repeating the word needle, seeing the picture of a needle, watching a video about needles, watching another video about kids being vaccinated, watching a video about a medical doctor in his clinic injecting a boy with a needle, watching a hospital and nurses with needles in their hands, exposure to a needle by holding it.

Then behavioral experiments followed: visiting a clinic, visiting a hospital to get a blood test or to be vaccinated, and taking the medication through the needle.

The first sets of exposures and experiments were done in the therapist's controlled and safe environment; the rate of these experiments depended on Peter's responsiveness and on his parents' cooperation in helping Peter perform them. The therapist accompanied Peter to the clinic when needed.

The therapist would set the experiment with the patient, making sure that it is easy and the possibility of doing it is there. The therapist asks the patient about this, and asks him to rate the likelihood of doing it and the level of its complexity. If the patient finds it difficult, and the possibility of doing it is low, the patient would modify as needed.

Prior to taking the medicine through needles, I was training Peter on deep breathing techniques, distraction, as well as muscular relaxation. Techniques such as Helfer skin tapping, cryotherapy and the Z-track approach were also discussed with Peter's doctor to reduce pain during injection. It is important to mention that behavioral experiments were repeated, graded and prolonged for the fear to fade away.

Table 3 Example of a Design of a Behavioral Experiment

Date and time	Situation	Experiment	Prediction	Outcome	What I learned?
		What can you do to test your fears?	1.What do you think will happen? 2.How much do you believe it will happen? 3.How would you know if it had?	1.What actually happened? 2. Were any of your predictions correct?	1.What do you make of the experiment? 2. How much you believe your initial predictions will happen in the future? 3. How can you find out?
	Ex: fear of hospital	Pass by hospital with my parents	I will tremble, sweat, and my heart will beat fast; 2. 100% 3. I will feel it.	1. No 2. No	I learned that my fear was irrational; won't happen; I will go again.

➢ *Sessions Eight to Ten*

Meeting Peter's parents was scheduled to check his progress and check for any possible therapy-interfering behaviors. I re-administered SCARED/parents' version, compared the results with the pre-treatment results to see if everything is on the right track. I addressed some difficulties and challenges.

Then I reassessed Peter's progress using SCARED/ children's version and discussed the results with him. Then I started to challenge his other thought that "Seeing blood will cause me to pass away or will cause something terrible to happen to me." I revised with him all the techniques used previously. This served two purposes: to manage any setback or relapse early in therapy, and to set treatment goals for the second type of phobia Peter had. It was expected that Peter would generalize many of the learned lessons, and that many steps might be covered quickly.

I repeated the same procedures used earlier for challenging cognitive distortions to challenge his fear of blood, and then built a hierarchy of fear of blood. Together with Peter, I designed a group of experiments, one at a time, to counteract Peter's thought that blood is dangerous. Behavioral experiments were graded, repeated and prolonged. For example, Peter was asked to bring the biology book with him to the session(s) so that behavioral experiments using it would be carried out with the therapist

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following this order: repeating the word blood, discussing the ideas of the circulatory system lesson, looking at its pictures, touching them, rehearsing the concepts of the circulatory system, and drawing annotated illustrations. A mock exam was done at the end to check if anxiety was becoming controlled.

- *Sessions Eleven and Twelve*

These sessions were dedicated to end treatment and relapse management. To end treatment safely, I applied SCARED for the last time to compare post-treatment scores with pre-treatment scores and to check if everything is becoming under control. I discussed the results with both Peter and his parents.

Relapse management started by discussing the therapy blueprint, a thorough revision of the learned lessons, revising the therapeutic skills and making generalizations, checking Peter's ability to manage any slip, setback and lapse by using the appropriate therapeutic skill. I finally asked Peter to visit me again after a month to give him a booster session.

IV. DISCUSSION

Peter's case is a typical example of specific phobia, specifically hemophobia and trypanophobia. Biological, psychological and cognitive vulnerability factors contributed to Peter's fears. In general, treating phobia starts with challenging cognitive distortions. However, what complicates this case is the family history of anxiety disorders, the overprotective parenting style, and the catastrophic thinking style of the mother and her health anxiety, all of which are rigid to break and are potential goals of therapy, or else they would act as therapy interfering behaviors, which may hinder the application of behavioral experiments and building new functional thinking style. For this reason, Peter's case needed an extended treatment plan that included 12 sessions, simply because there are two different phobias and the rigid parental thinking styles was complicating the case.

V. SUMMARY OF THE CASE

Peter is a 10-year-old boy whose parents brought him to clinic due to severe anxiety and avoidance behaviours related to needles and blood-related situations. The parents report that this issue has been ongoing for several years but has escalated recently. During the assessment session with Peter, he mentions that he exhibits an intense and irrational fear of needles. Even the mention of needles or syringes triggers his anxiety. He actively avoids any medical procedures involving needles, including vaccinations or blood tests. In the presence of needles, he experiences rapid heartbeat, profuse sweating, trembling, and sometimes even vomiting. He frequently expresses concerns that needles are excruciatingly painful, and he believes something terrible will happen if he comes into contact with them. The sight of a hospital or a doctor's office is a significant trigger for Peter, as it reminds him of potential needle-related situations. His anxiety symptoms have intensified after a painful needle experience, indicating a possible sensitization of his fear response. The symptoms have started affecting his school performance, as he becomes anxious during biology lessons or when topics related to the circulatory system are discussed.

Peter also states that he has a pronounced fear of blood or any situation where blood may be present. In response to blood-related stimuli, he reports feeling dizzy, lightheaded, and occasionally fainting. He is convinced that seeing blood will lead to him passing out or becoming seriously ill. Peter's fear intensified after a he witnessed his older sister undergoing a medical procedure involving blood test, and he felt helpless during that experience. Peter's parents mentioned that they have family history of anxiety disorders, especially health anxiety. His mother, in particular, worries about getting sick and displays catastrophic thinking in regards to her children's health. As well, the parents show overprotective behaviours, such as avoiding any situations that might trigger Peter's phobias, which could contribute to the maintenance of his anxiety.

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